

Abstract of the Disclosure

A method for manufacturing a MRAM wherein a MTJ cell and a connection layer are simultaneously patterned, and an
5 insulating film spacer and a hard mask layer are used as etching masks instead of a photoresist film to simplify the manufacturing process and to prevent generation of a metal polymer is disclosed. The method for manufacturing a MRAM comprises the steps of: forming a metal layer for a
10 connection layer connected to a semiconductor substrate through a lower insulating layer; sequentially forming a pinned magnetic layer, a tunnel barrier layer and a free magnetic layer on the metal layer; forming a hard mask on the free magnetic layer; etching the hard mask layer and
15 the free magnetic layer in a photolithography process using a MTJ cell mask to expose the tunnel barrier layer; sequentially forming a barrier layer and an insulating film on the entire surface; anisotropically etching the insulating film to form an insulating film spacer on a
20 sidewall of the hard mask layer and the free magnetic layer; and etching the tunnel barrier layer, the pinned magnetic layer and the metal layer using the insulating film spacer and the hard mask layer as a mask to form a MTJ cell and a connection layer.